The NASDAQ Opening and Closing Crosses

QUICK REFERENCE GUIDE

The NASDAQ Opening Cross™ and Closing Cross™ are open to all securities listed on the NASDAQ, NYSE, NYSE Arca and NYSE Arca exchanges.

Opening Order Types

Regular Hours Orders: Executable from 9:30 a.m. to 4:00 p.m., Eastern Time* (ET), including during the cross.
- Includes Day, GTC and IOC orders.
- Limit Orders placed after 9:28 a.m. are treated as Imbalance-Only (IO) orders for the Opening Cross. If not fully executed in the cross, the orders are then returned to the order entering party.
- Market Orders placed after 9:28 a.m. will not be accepted.
- Firms may re-enter Limit and Market Orders after the Opening Cross is complete.

On-Open (OO) Orders: Executable only during the cross.
- Market-on-open (MOO) and limit-on-open (LOO) orders must be received prior to 9:28 a.m.

Quotes and System Hours Orders: Eligible for the cross except for IOX orders.
- Includes quotes, extended Day (X), extended GTC (GTX) and extended immediate-or-cancel (IOX) orders.
- Executable during normal and extended hours (7:00 a.m. to 8:00 p.m.). No market orders during extended hours.

Imbalance-Only (IO) Orders: Executable only during the cross.
- Liquidity-providing orders that stabilize the crossing price.
- IO orders to buy (or sell) that are priced more aggressively than the 9:30 a.m., NASDAQ® bid (or ask) will be adjusted to the NASDAQ bid (or ask) prior to the execution of the cross.

Opening Timeline of Events

7:00 a.m.: Trading and order entry begins.
- NASDAQ begins accepting entry of orders.
- Entered orders can be canceled.
- Pre-open trading session begins for system hours (X, GTX and IOX) orders and quotes that have been voluntarily opened by a market participant. Automatic executions will occur.
- Any open quotes or extended hours orders that lock or cross other open quotes or extended hours orders will execute.
- A quote can be opened for the pre-market trading session by sending a Quote Update message with the Request Quote Code field set to Open ("O") over QIX. Once a firm opens its quote in a security, all of the firm’s quotes in the security are open and the quote cannot be closed. This is allowed throughout the quote/order-entry session and pre-market trading session.
- System hours orders and open quotes are firm and are broadcast over the vendor feeds.
- Market participants may update their quotes but leave them in a closed state. The closed quotes will NOT be broadcast. Quotes that are updated are echoed back to the updating firm over QIX.
- Auto Quote Refresh (AQR) will operate during this time.

9:25 a.m.: NASDAQ will open or enter quotes for any participant with no open interest.
- NASDAQ wakes up all quotes according to instructions in firms’ profiles.
- If a firm has chosen to zero out its quotes overnight, NASDAQ will enter a quote for the participant of $.0001 bid and $199,999.99 offer.

9:28 a.m.:
- Dissemination of opening order imbalance information begins.
- MOO orders may no longer be entered, canceled or canceled/replaced.
- Cancel requests of regular hours orders (Day, GTC, IOC, market) on the book will be pended until after the cross occurs.
- Regular hours limit orders arriving after this time will be treated as IO orders.
- IO orders may be submitted but not updated or canceled.

9:30 a.m.: The Opening Cross occurs.
- The Opening Cross process begins, NASDAQ Official Opening Prices are disseminated, and executions are sent to the tape.
- After the cross, queued orders, unexecuted but marketable late orders and quote changes will be processed in time priority, but no executions will occur before 9:30 a.m.

* All Times Eastern
Opening Cross Execution Priority

1. MOO orders and early (pre-9:28 a.m.) regular hours market orders.
2. Orders/quotes priced more aggressively than the crossing price, including:
   - LOO orders, early regular hours limit orders (display and reserve), IO orders, quotes (display and reserve) and X orders (display and reserve).
3. Orders/quotes priced at the crossing price, including:
   - LOO orders, IO orders and displayed portion of early regular hours limit orders, quotes and X orders in time priority.
   - Quote reserve, early regular hours order reserve and X order reserve in time priority.

Closing Order Types

On-Close (OC) Orders: Executable only during the cross.
- Market-on-close (MOC) and limit-on-close (LOC) — must be received prior to 3:50 p.m.

Imbalance-Only (IO) Orders: Executable only during the cross.
- Liquidity-providing orders that stabilize the crossing price.
- Can be entered until the close but cannot be canceled after 3:50 p.m.
- IO orders to buy (or sell) that are priced more aggressively than the 4:00 p.m. NASDAQ bid (or ask) will be adjusted to the NASDAQ bid (or ask) prior to the execution of the cross.

Closing Timeline of Events

7:00 a.m.: NASDAQ begins accepting OC and IO orders.
- Entered orders can be canceled.
3:50 p.m.: Dissemination of closing order imbalance information begins.
- NASDAQ stops accepting entry, cancellation or cancel/replacement of OC orders.
- IO orders may be submitted but not updated or canceled.
4:00 p.m.: The Closing Cross occurs.
- NASDAQ Official Closing Prices are disseminated and executions are sent to the tape.

Closing Cross Execution Priority

1. MOC in price/time priority.
2. LOC orders, IO orders and displayed interest of limit orders/quotes in price/time priority.
   - Reserve size for the above executes last at each price level before moving on to the next price level.
   - Aggressively priced IO orders will be re-priced to the NASDAQ best bid or offer prior to the Closing Cross calculation.

For more information, contact NASDAQ Market Sales at +1 800 846 0477 or visit www.NASDAQTrader.com/open.

* All Times Eastern
1 Priority for IO orders will be applied after the limit prices of IO orders have been adjusted to reflect the NASDAQ Inside at the time of the Opening / Closing Cross.

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